HD74LS14

Hex Schmitt Trigger Inverters

REJ03D0399–0300
Rev.3.00
Jul.13.2005

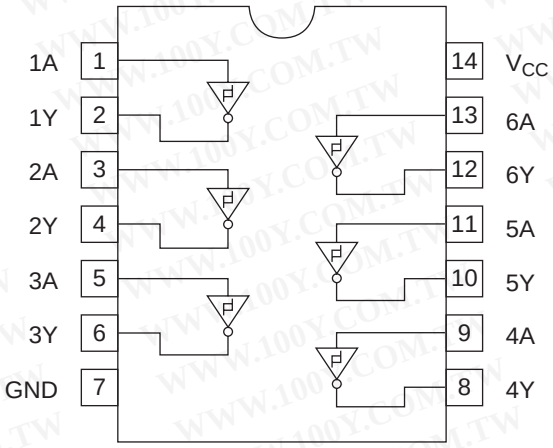
Features

- Ordering Information

Part Name	Package Type	Package Code (Previous Code)	Package Abbreviation	Taping Abbreviation (Quantity)
HD74LS14P	DILP-14 pin	PRDP0014AB-B (DP-14AV)	P	—
HD74LS14FPEL	SOP-14 pin (JEITA)	PRSP0014DF-B (FP-14DAV)	FP	EL (2,000 pcs/reel)

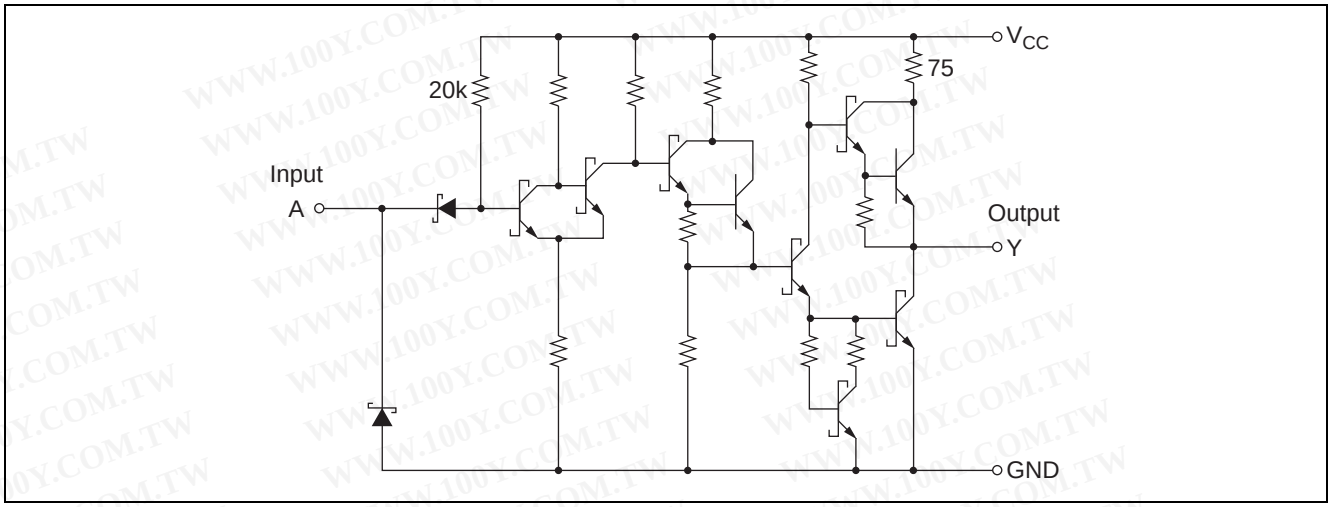
Note: Please consult the sales office for the above package availability.

Pin Arrangement



(Top view)

Circuit Schematic (1/6)



Absolute Maximum Ratings

Item	Symbol	Ratings	Unit
Input voltage	V_{IN}	7	V
Supply voltage	V_{CC}	7	V
Power dissipation	P_T	400	mW
Storage temperature	Tstg	–65 to +150	°C

Note: Voltage value, unless otherwise noted, are with respect to network ground terminal.

Recommended Operating Conditions

Item	Symbol	Min	Typ	Max	Unit
Supply voltage	V_{CC}	4.75	5.00	5.25	V
Output current	I_{OH}	—	—	–400	µA
	I_{OL}	—	—	8	mA
Operating temperature	Topr	–20	25	75	°C

Electrical Characteristics

(Ta = –20 to +75 °C)

Item	Symbol	min.	typ.*	max.	Unit	Condition
Input threshold voltage	V_T^+	1.4	1.6	1.9	V	V_{CC} = 5 V
	V_T^-	0.5	0.7	1.0	V	V_{CC} = 5 V
Hysteresis	$V_T^+ – V_T^-$	0.4	0.9	—	V	V_{CC} = 5 V
Output voltage	V_{OH}	2.7	—	—	V	V_{CC} = 4.75 V, V_I = 0.5 V, I_{OH} = –400 µA
	V_{OL}	—	—	0.5	V	I_{OL} = 8 mA; V_{CC} = 4.75 V, V_I = 1.9 V
		—	—	0.4		I_{OL} = 4 mA
Input threshold current	I_T^+	—	–0.14	—	mA	V_{CC} = 5 V, $V_I = V_T^+$
	I_T^-	—	–0.18	—	mA	V_{CC} = 5 V, $V_I = V_T^-$
Input current	I_{IH}	—	—	20	µA	V_{CC} = 5.25 V, V_I = 2.7 V
	I_{IL}	—	—	–0.4	mA	V_{CC} = 5.25 V, V_I = 0.4 V
	I_I	—	—	0.1	mA	V_{CC} = 5.25 V, V_I = 7 V
Short-circuit output current	I_{OS}	–20	—	–100	mA	V_{CC} = 5.25 V
Supply current	I_{CCH}	—	8.6	16	mA	V_{CC} = 5.25 V
	I_{CCL}	—	12	21	mA	V_{CC} = 5.25 V
Input clamp voltage	V_{IK}	—	—	–1.5	V	V_{CC} = 4.75 V, I_{IN} = –18 mA

Note: * V_{CC} = 5 V, Ta = 25°C

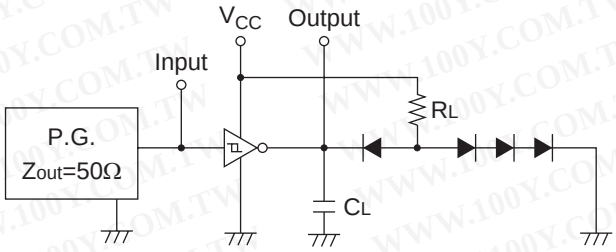
Switching Characteristics

(V_{CC} = 5 V, Ta = 25°C)

Item	Symbol	min.	typ.	max.	Unit	Condition
Propagation delay time	t_{PLH}	—	15	22	ns	C_L = 15 pF, R_L = 2 kΩ
	t_{PHL}	—	15	22	ns	

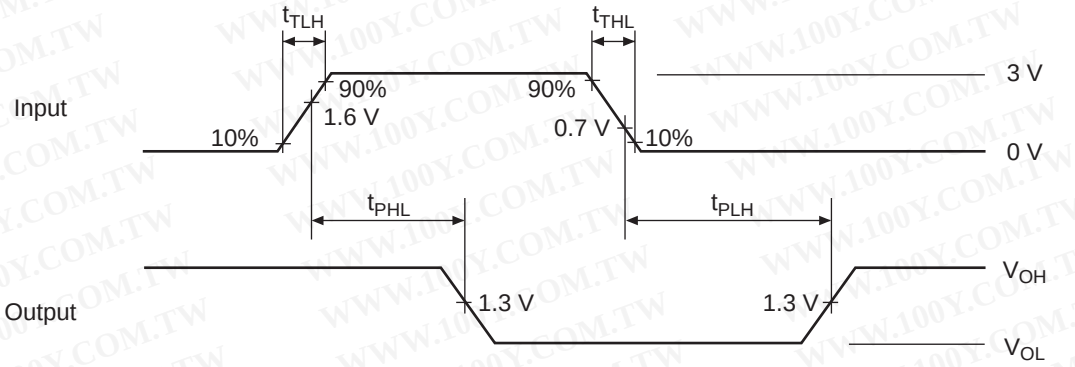
Testing Method

Test Circuit



Notes: 1. All diodes are 1S2074(H).
2. C_L includes probe and jig capacitance.

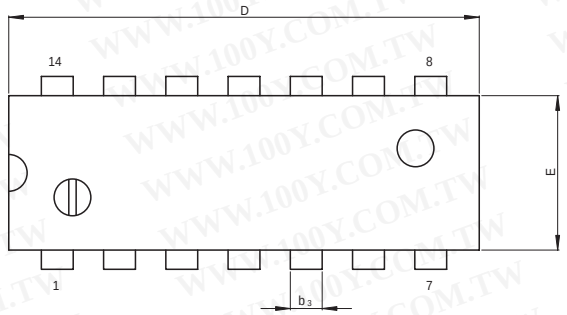
Waveform

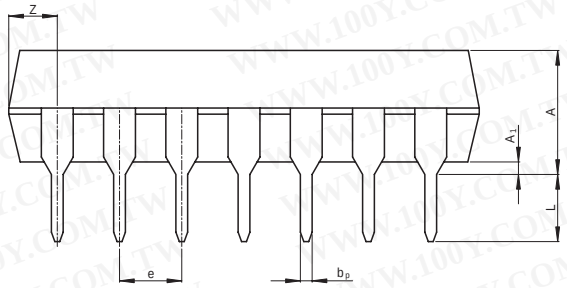


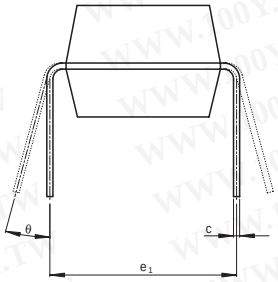
Note: Input pulse: $t_{TLH} \leq 15$ ns, $t_{THL} \leq 6$ ns P_{RR} = 1 MHz, duty cycle 50%.

Package Dimensions

JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-DIP14-6.3x19.2-2.54	PRDP0014AB-B	DP-14AV	0.97g



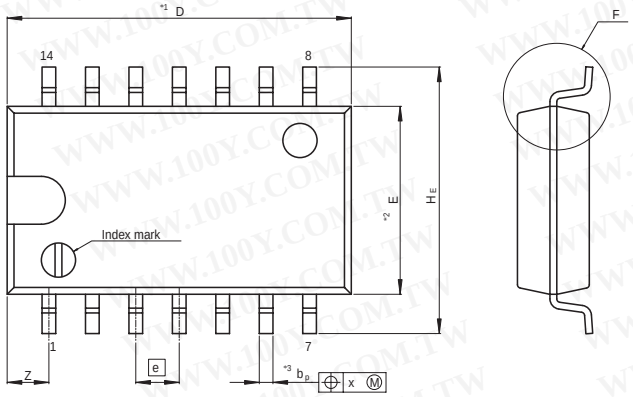


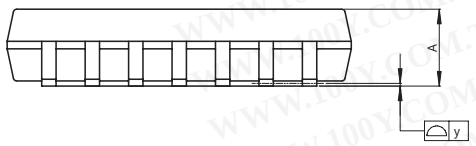


(Ni/Pd/Au plating)

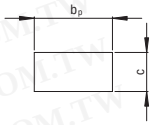
Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
e1	—	7.62	—
D	—	19.2	20.32
E	—	6.3	7.4
A	—	—	5.06
A1	0.51	—	—
bp	0.40	0.48	0.56
b3	—	1.30	—
c	0.19	0.25	0.31
θ	0°	—	15°
e	2.29	2.54	2.79
Z	—	—	2.39
L	2.54	—	—

JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-SOP14-5.5x10.06-1.27	PRSP0014DF-B	FP-14DAV	0.23g

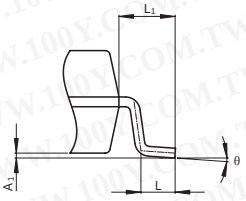




NOTE)
1. DIMENSIONS"*1 (Nom)"AND"*2" DO NOT INCLUDE MOLD FLASH.
2. DIMENSION"*3"DOES NOT INCLUDE TRIM OFFSET.



Terminal cross section
(Ni/Pd/Au plating)



Detail F

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	10.06	10.5
E	—	5.50	—
A2	—	—	—
A1	0.00	0.10	0.20
A	—	—	2.20
bp	0.34	0.40	0.46
b1	—	—	—
c	0.15	0.20	0.25
c1	—	—	—
θ	0°	—	8°
HE	7.50	7.80	8.00
e	—	1.27	—
x	—	—	0.12
y	—	—	0.15
Z	—	—	1.42
L	0.50	0.70	0.90
L1	—	1.15	—

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http://www.renesas.com

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